Dimethoate Technical Briefing

December 14, 1999

Introduction and Background Information

Introduction and Overview

Patrick Dobak

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OPP

Introduction and Overview

Purpose of Briefing

- Present overview of dimethoate risk estimates
- Begin public participation period for risk mitigation strategies
- Identify where to focus mitigation

Introduction

Dimethoate Risk Assessments Consider:

- **Dietary risk:** *food and drinking water*
- **Aggregate risk:** *dietary (food) and drinking water*
- **Worker risk:** *loaders + applicators (handlers), flaggers, and postapplication workers*
- **Ecological risks:** *birds, mammals, honey bees, fish, and other aquatic species*

Introduction

Dimethoate Risk Assessments DO NOT Consider:

- Residential risk
  - Residential uses are not being supported

Introduction

TRAC Pilot Public Participation Process for Dimethoate

Phase	Date
❶ "Error Only" Review	7/98
❷ Public Docket Opened	8/98
❸ Comment Period Completed	9/99
❹ Revised Assessment to USDA	9/99
❺ Develop Risk Mgt. Options	12/14/99
❻ Develop Transition Strategy	

Introduction

Phase 1: "Error Only" Review by Registrant

Phase 2: Open Public Docket

- Concerns for acute dietary risk, worker risk, and ecological risk

Introduction

Phase 3: Public Participation

- Importance and benefits to agriculture
- Agency policies
  - Common mechanism of toxicity
  - FQPA safety factor
  - Assumptions and methodologies
- Outstanding data and submission schedule

Introduction

- Phase 4: Solicit Comments from USDA
  - % Crop treated information
  - Use rates

Introduction

Phase 4: Data Received After Public Comment Period

- 5-day dermal study
- Acute feeding study
- Monte Carlo Analysis

Introduction

Phase 5: Start of Risk Management

- Technical briefing (December 14, 1999)
- Revised risk assessment available in public docket and on the internet
- Begin 60-day public participation period
- Public submits risk management ideas
- Opportunities for stakeholders to meet with EPA

Regulatory History

Suku Oonnithan, Ph.D.
Entomologist
Registration Division

Regulatory History

- 1950 – USP 2494283 issued to American Cyanamid
- 1962 – First Insecticide Use Registered

Regulatory History

- Active Registrations
  - 25 Companies have products
  - 112 Product Registrations
    - 51 Section 3s
      - 6 Technical & Manufacturing Intermediates
      - 40 Emulsifiable Concentrates (EC)
      - 5 Wettable Powders (WP)
    - 61 Section 24(c)s
      - 12 States have SLNS

Regulatory History

- Tolerance (180.204): Established in mid 1960
  - Range from 0.02 to 5.0 ppm
    - 48 Raw Agricultural Commodities (RACs)
    - 20 Meat, Milk & Egg Products
- RPAR issued 1997
- Registration Standard Issued 1983
- Data Call-In 1991

Use Profile

William Gross, Entomologist

Frank Hernandez, Economist

Biological & Economic Analysis Division

Use Profile

- Type of Pesticide
  - Insecticide/ Miticide
  - 21 major crop pests
- Currently registered uses
  - 36 food crop groups
- Application Methods
  - Ground equipment
  - Aerial

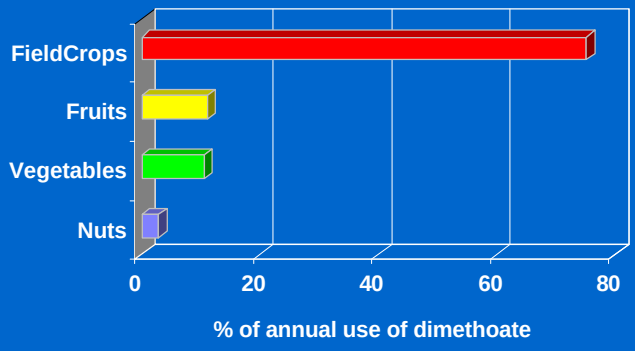
Use Profile

Use Practices

- Use Rates
  - 1-4 applications per season (depending on crop)
  - 0.2 to 2.0 lbs a.i. per acre on food crops
  - Up to 4 lbs a.i. per acre per season on most ornamentals
  - A few other ornamental uses with application rates up to 33 lbs a.i. per acre (conifer seed nurseries and cotton wood)

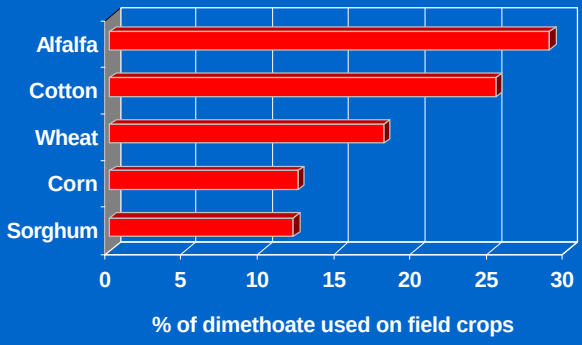
Use Profile: Crop Types

- *Field crops use almost 80% of the 2.5 M lbs ai of dimethoate applied annually*



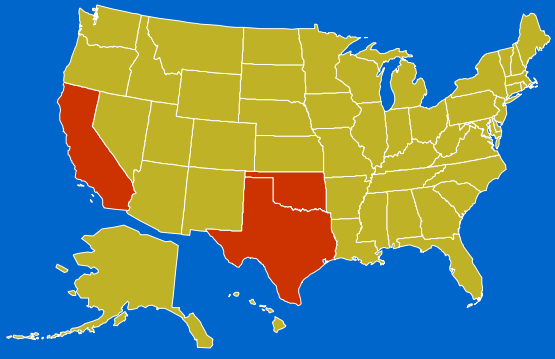
Use Profile: Field Crops

- *Five field crops account for almost all of the 2 M lbs ai used*



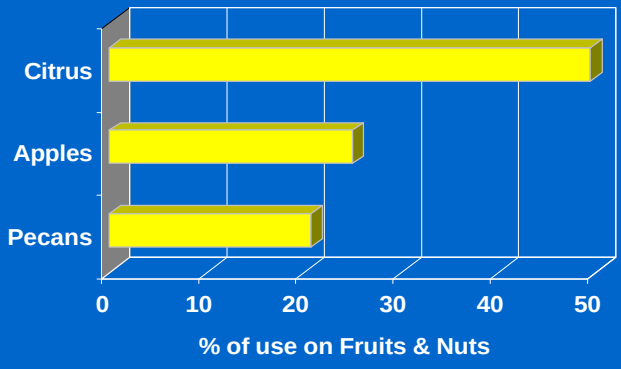
Use Profile: Major FC States

- *CA,TX, and OK use about 50% of the 2 M lbs ai applied to field crops*



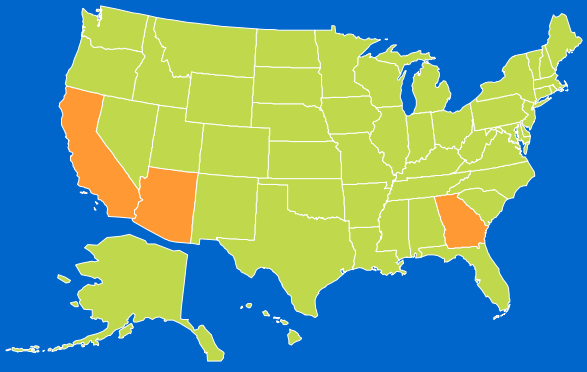
Use Profile: Fruits & Nuts

- *Citrus, apples, and pecans account for almost all of the 300K lbs ai used*



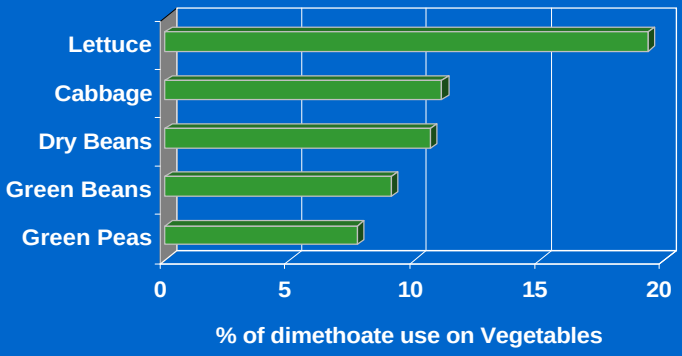
Use Profile: Major F&N States

- *CA, AZ, and GA use over 50% of the 300K lbs ai applied to fruits and nuts*



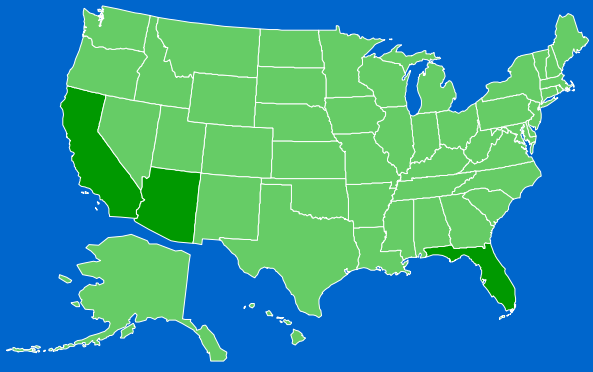
Use Profile: Vegetables

- *5 crops use over 50 % of the 200K lbs ai used on vegetables*



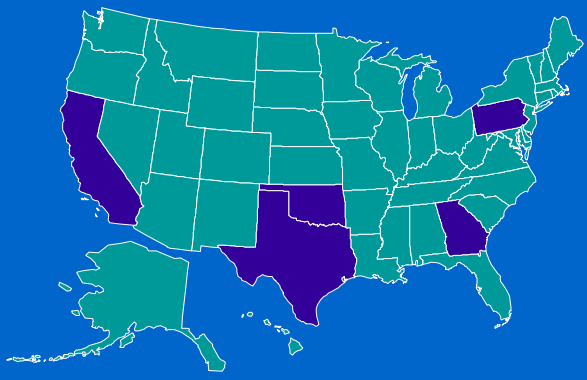
Use Profile: Major Veg. States

- *CA, AZ, and FL use over 50% of the 200K lbs ai used on vegetables*



Use Profile: Top 5 States

- *CA, OK,TX, GA, and PA account for over 50% of the 2.5 M lbs ai applied*

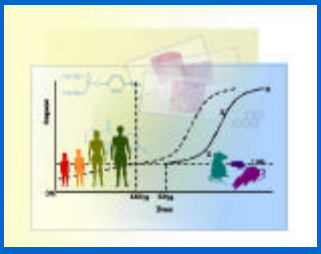


Use Profile: Sources

- Sources of Use Data
  - USDA/NASS and ERS
  - California Department of Pesticide Regulation
  - State Departments of Agriculture
  - National Center For Food and Ag Policy
  - Other sources (e.g., growers and registrant)

www.epa.gov/pesticides/trac/science

Human Health Risk Assessment



www.epa.gov/pesticides/op/Dimethoate.htm

Risk Assessment - Overview

Diana Locke, Ph.D.
Health Effects Division, OPP

Risk Assessment Components

- Dietary
  - Food
  - Drinking Water
- Occupational
  - Handlers
  - Post-application workers
- Residential
  - There are no residential uses of dimethoate
  - Aggregate (food, drinking water)

Dietary Risk Equation

Dietary Exposure = Consumption x Residue

Risk = Hazard x Exposure

Acute Hazard (toxicity)

- **Study**: Acute oral neurotoxicity study in rats
  - Lack of pupil response
  - No cholinesterase measurements
- **Endpoint:**

  Lack of pupil response in the acute study
  - NOAEL: 2.0 mg/kgBW/day
  - LOAEL: 20.0 mg/kgBW/day

Additional support provided by two 90-day subchronic studies in which 1 and 3 week ChEI measurements were made

Chronic Hazard (toxicity)

- **Study**: 2-year Chronic Feeding Study in Rats
- **Endpoint (toxic effect)**:

  Brain and red blood cell cholinesterase inhibition
  - NOAEL: 0.05 mg/kgBW/day
  - LOAEL: 0.25 mg/kgBW/day

Analysis of Special Sensitivity of Infants and Children

- No developmental effects in fetuses
- No toxicity to offspring below maternally toxic doses
- No increased sensitivity in pups relative to adults
- No abnormalities in developing fetal nervous system
- No histopathology of the nervous system
- Complete toxicity database
- Good data - unlikely that exposures are underestimated

Expression of Risk for Dimethoate

- Dietary Exposure

$$RfD = \frac{NOAEL}{UF}$$

$$PAD = \frac{RfD}{FQPA\ Safety\ Factor}$$

$$\%PAD = \frac{Exposure \times 100}{PAD}$$

- PAD = Population Adjusted Dose
- Less than 100% PAD is not of concern
- The smaller, the better

Acute Population Adjusted Dose (aPAD)

aPAD = 0.02 mg/kg/day, based on:

- NOAEL of 2.0 mg/kg/day
- Uncertainty Factors:
  - 10X interspecies extrapolation
  - 10X intraspecies variability
  - 1X FQPA Safety Factor

Chronic Population Adjusted Dose (cPAD)

cPAD = 0.0005 mg/kg/day, based on:

- NOAEL of 0.05 mg/kg/day
- **Uncertainty Factors:**
  - 10X interspecies extrapolation
  - 10X intraspecies variability
  - 1X FQPA Safety Factor

Dietary Risk - Overview

Mohsen Sahafeyan, Chemist
Health Effects Division, OPP

Acute and Chronic Dietary Risk Assessment

Risk = Hazard x Exposure

Exposure = Consumption x Residue

Source of Data

- Consumption Data
  - USDA's Continuing Survey of Food Intake by Individuals (CSFII) 1989-92 Data
  - 1994-96 data are being validated for future use
- Residue Data
  - Monitoring data (PDP, FDA) ==> ~75% of crops
  - field trial data

Types of Risk Assessments

- **Acute Dietary:**

  Conducted Tier 1 (non-probabilistic) and Tier 3 (probabilistic) assessments

  - Tier 1 assumed tolerance level residues and 100% crop treated (1997, results: risks above level of concern)
  - Tier 3 used monitoring data, single-serving PDP data, % of crop treated, field trial data, processing data, and cooking studies from literature. Tolerance values were also used.

USDA PDP Data Used for Dietary Risk Assessment

- Apples, apple juice
- Pears
- Grapes, grape juice
- Green Beans, fresh, can & frozen
- Celery
- Oranges, orange juice
- Spinach
- Tomatoes
- Milk
- Broccoli
- Lettuce

Translated Foods

- Brussels sprouts (lettuce)
- Mustard green (spinach)
- Swiss Chard (spinach)
- Peas (green beans)
- Lentils (green beans)
- Hot pepper (tomato)
- Lemons (oranges)
- Tangerines (oranges)
- Lemon juice (orange juice)
- Tangerine juice (orange juice)
- Apples- single serving data (pears- single serving data)

FDA Data

- Cherries
- Asparagus
- Cauliflower
- Grapefruits,
- Grapefruit Juice
- Kale
- Leaf Lettuce
- Potatoes
- Collards
- Endives
- Sweet Pepper
- Soybeans
- Wheat

Magnitude of the Residue Data from Field Studies

- Blueberries
- Cabbage
- Cottonseed (oil and meal)
- Egg/Poultry
- Field Corn
- Meat
- Melons
- Pecan
- Popcorn
- Pork
- Safflower
- Sorghum
- Turnips
- Watermelons

Note: For all of the commodities except for sorghum tolerance level residues were used

Residues of Concern

Dimethoate + Omethoate

Dimethoate + Omethoate

Dimethoate (Dim)	Omethoate (Om)	Addition Method
Detect	Detect	Dim detect + Om detect
Detect	Non-Detect	Dim Det + ½ LOD for Om for that sample
Non-Detect	Detect	½ LOD for Dim for that sample + Om Detect
Non-Detect	Non-Detect	½ LOD for Dim for that sample + ½ LOD for Om for that sample

Dimethoate + Omethoate

Dimethoate (Dim)	Omethoate (Om)	Addition Method
Detect	Not analyzed	Detect for Dim + Detect (same value) for Om
Non-Detect	Not Analyzed	½ LOD for Dim for that sample + ½ average LOD for Om for that commodity
Not Analyzed	Detect	Detect for Om + Detect (same value) for Dim
Not Analyzed	Non-Detect	½ LOD for Om for that sample + ½ average LOD for Dim for that commodity

Examples of Residue Data Used

Crop/Commodity Specific Residue Data Used in Dietary Risk Assessment	
Crop/Commodity	**Residue Data Used**
Broccoli	Residue data from monitoring data plus cooking factors. Source: USDA's PDP, Literature
Collards	Residue data from monitoring data plus cooking factors Source: FDA, Literature
Pears	Data from single-serving samples Source: PDP (1998 special survey)
Melons	Tolerance level (1 ppm) Source: Field trial data

Probabilistic Acute Dietary Analysis Results

Risk Estimates as Percent of the aPAD

Population	99.9th Percentile
U. S. Population	41
Infants	31
Children 1-6	86
Children 7-12	37

Chronic Dietary Analysis Results

Risk Estimates as Percent of the cPAD

Population	%cPAD
U.S Population	20
Infants	23
Children 1-6	36
Children 7-12	20

Dietary Risk Assessment: *Summary*

- **Acute**
  - Highly refined
  - Acute risk estimates are below the level of concern
- **Chronic**
  - Limited refinement
  - Chronic risk estimates are below the level of concern

Drinking Water Risk Assessment

Diana Locke, Ph.D.
Health Effects Division, OPP

Drinking Water Risk Assessment

- Conducted because of use pattern and environmental fate profile
- Available drinking water monitoring data are limited
- Drinking water assessment is based on surface water monitoring data and simulation modeling for surface and ground water

Drinking Water Risk Assessment

- Acute (For children 1-6)
  - 86% of the acute PAD used by exposure through food, leaving 14% for drinking water exposure
  - Models show application rates 4 lbs a.i./A or greater are of concern
- Chronic (For Children 1-6)
  - 36% of chronic PAD used by exposure through food, leaving 64% for drinking water exposure
- Modeled EECs and limited monitoring data were less than levels of concern for most uses.

Aggregate Risk Assessment

- Aggregate risk assessment of dimethoate currently includes food and drinking water only
- Both adults and children considered
- Acute and chronic aggregate risks are not expected to be of concern for most uses

Occupational Risk Assessment

Al Nielsen,
Branch Senior Scientist
Health Effects Division, OPP

Dimethoate Occupational Risk Assessment

Handlers

- *includes professional pesticide applicators, farmer/growers who mix, load and apply pesticides*

Postapplication Workers

- *Include workers who prune, thin, hoe, prop, and harvest crops following pesticide application*

Handler Assessment

- The handler risk assessment is based on:
  - Activity (e.g., mixer/loader)
  - Formulation and application equipment (e.g., emulsifiable liquid, groundboom, aerial)
  - Unit exposure (mg ai/lb ai handled)
  - Rate of application (lb ai/acre)
  - Areas treated per day (e.g., acres/day)
  - Levels of protection (e.g., PPE or engineering controls)
  - Toxicity endpoint

Toxicity Endpoints for Occupational Risk Assessment – Short-term

Dermal	Study	5-day dermal in rats
	NOAEL	10 mg/kg/day
Inhalation	Study	90-day feeding in rats 90-day neurotoxicity in rats
	NOAEL	2.0 mg/kg/day
Endpoint: ChEI of plasma, RBC, and brain (D) Absence of pupillary response, ChEI of plasma (I) UF = 100		

Toxicity Endpoints for Occupational Risk Assessment – Intermediate-term

Dermal	Study	90-day feeding in rats 90-day neurotoxicity in rats
	LOAEL	3.2 mg/kg/day (11% dermal absorption)
Inhalation	Study	90-day feeding in rats 90-day neurotoxicity in rats
	LOAEL	3.2 mg/kg/day (100% absorption)
Endpoint: ChEI of plasma, RBC, and brain (D, I) UF = 300		

Handler Assessment

Handler Exposure and Risk Calculations (Dermal)

$$\text{MOE} = \frac{\text{NOAEL (mg/kg/day)}}{\text{Dose (mg/kg/day)}}$$

$$\text{Dose} = \frac{\text{(unit exposure) x (appl. rate) x (acres/day) x (\%absorption)}}{\text{Body Weight}}$$

NOTE: Correction for dermal absorption is required for intermediate-term dermal risk assessment

Handler Assessment

- **Data Sources:**
  - Labels
  - Use information
  - Standard Assumptions
  - Chemical-specific studies
  - Pesticide Handlers Exposure Database (PHED)

Pesticide Handlers Exposure Database (PHED)

- Developed by Task Force -- USEPA, Health Canada, California DPR, and ACPA
- Contains actual monitored data generated by registrants
- Harmonized use of the database

PHED Strengths

- Most complete source of pesticide monitoring data available
- Data and system extensively peer reviewed
- Adds consistency to risk assessments
- Widely accepted by industry and others

Handler Assessment Scenarios

- **Emulsifible Concentrate (EC) and Wettable Powder Formulations**
  - **Mixer/Loader**
    - –Airblast, Groundboom, and Aerial Applications
  - **Applicator**
    - –Airblast, Groundboom, and Aerial Applications
  - **Flagger**
    - –Aerial Applications

Handler Assessment – Intermediate-term (UF = 300)

Groundboom Application

Tomatoes, 0.5 lb ai/a – EC, 80 acres treated combined dermal and inhalation

Activity	Range of MOEs		
	Baseline	PPE	Engineering Controls
Mixing/Loading	17	1500 (g)	-
Applying	2500	-	-

(g) = c/r gloves

Handler Assessment – Intermediate-term (UF = 300)

Airblast Application

Apples, 0.5 lb ai/a – EC, 40 acres treated, combined dermal and inhalation

Activity	Range of MOEs		
	Baseline	PPE	Engineering Controls
Mixing/Loading	35	3000 (g)	-
Applying	250	360 (g)	-

(g) = c/r gloves

Handler Assessment – Intermediate-term (UF = 300)

Aerial Application

Citrus, 0.5 lb ai/a – EC, 350 acres treated, combined dermal and inhalation

Activity	Range of MOEs		
	Baseline	PPE	Engineering Controls
Mixing/Loading	4	340 (g)	-
Applying	-	-	2100
Flagging	820	-	-

(g) = c/r gloves

Handler Assessment – Intermediate-term (UF = 300)

Aerial Application

Grapes, 2.0 lb ai/a – WP, 350 acres treated, combined dermal and inhalation

Activity	Range of MOEs		
	Baseline	PPE	Engineering Controls
Mixing/Loading	<1	14 (g,dl,r)	240
Applying	-	-	520
Flagging	210	220 (dl)	540

(g) = c/r gloves; (dl) = double layer clothing; (r) = respirator

Postapplication Worker Assessment

- **Factors Forming Basis for Risk Assessment :**
  - Dislodgeable Foliar Residue (DFR):
    - amount of pesticide residue that workers could contact in field
  - Transfer Coefficient (Tc):
    - indicator of amount of contact that a worker has for each crop and activity

Postapplication Worker Assessment

Postapplication Worker Risk Calculations

$$MOE = \frac{NOAEL\ (mg/kg/day)}{Dose\ (mg/kg/day)}$$

$$Dose = \frac{DFR(ug/cm2) \times Tc(cm2/hr) \times Hrs\ Worked \times \%Absorption}{Body\ Weight\ (kg)}$$

Postapplication Worker Assessment

- Sources of Information
  - DFR Data: Registrant Conducted Studies
    - Four crops (tomatoes, lettuce, apples, grapes)
    - In six states (CA, FL, PA, WA, MI, and NY)
  - Transfer Coefficients
    - Standard Values

Postapplication Worker Assessment

Risk Assessment Results - Harvesting		
Crop	Application Rate (lb ai/A)	Days After Application ≥ 300
Peas	0.16	* 0-2
Lettuce	0.25	0-2
Peppers	0.33	1-2
Cotton	0.5	1-2
Apples	0.5	15-32
Grapes	2.0	9-23
Woody Ornamentals	2.0	24-50

* 0 day represents 12 hours after application

Incident Data

- Dimethoate Incidents
  - Incident Data System:
    - 26 allegations of minor affects from application and spray drift
  - Poison Control Center (1985 – 96)
    - 177 occupational cases (dimethoate alone); and
    - 764 non-occupational cases (dimethoate alone)
  - California DPR (1982-1996)
    - 135 incidents

Ecological Risk Assessment

Ecological Risk Assessment

Dana S.Spatz,

Nicholas Federoff,

Environmental Fate and Effects Division, OPP

Environmental Fate and Effects Assessment

- Environmental Fate Assessment
  - Laboratory and Field Studies
- Water Resource Assessment
  - Modeling and Monitoring
- Ecotoxicity
  - Acute and chronic studies
  - Birds, mammals, insects, fish, aquatic invertebrates, and plants.
- Ecological Risk Assessment
  - Exposure and Toxicity
  - Incidents

Environmental Fate of Dimethoate

- Mobile, yet relatively non-persistent organophosphate insecticide.
- Primary route of dissipation appears to be microbially-mediated hydrolytic and oxidative degradation in aerobic soil.
- Persistence very sensitive to soil moisture.

Laboratory Fate Parameters

- Soil half-life of 2.4 days, CO_2 is major degradate.
- pH 9 hydrolysis half-life is 4.4 days.
- Calculated K_d values (based on column leaching studies) ranged from 0.06 to 0.74.
- Degradate mobility not well defined; but not expected to persist and move through soil.

Field Dissipation

- Field half-lives ranged from 5-15 days when applied post-emergence to green beans, grapes, and bareground in CA; grain sorghum in TX; and bareground in NY.
- Some downward movement through the soil, though residues did not persist.
- Dimethoxon (omethoate) was detected in all five studies, but degraded fairly rapidly in all but one study. Less mobile than parent.

Ground Water Assessment

- Although dimethoate is mobile, under most conditions it is not likely to persist and contaminate ground water.
- Typically applied foliarly and is rapidly absorbed and metabolized both on the surface and within the plant by hydrolytic and oxidative processes.

Ground Water Monitoring

- 1693 wells in 36 counties sampled in CA between 1986-1992. Residues detected at 0.38 and 10.0 ug/L, in two wells. Residues not detected in follow-up samples.
- These detections are generally greater than the concentrations predicted (0.002 ug/L) by the SCI-GROW model.

Surface Water Assessment

- Can contaminate surface water at application by spray drift.
- Low soil/water partitioning indicates that leaching may remove a substantial amount of chemical from the top inch of soil.
- Biodegradation and alkaline hydrolysis will contribute to the dissipation of dimethoate in surface waters.
- Generally not detected in monitoring programs.

Implications for Drinking Water

- Considering the modeled concentrations, the rate of microbial degradation, and the available monitoring data, dimethoate parent is not likely to exceed 2.0 ug/L for any appreciable length of time.
- Most modeled scenarios showed estimates of less than 1.0 ug/L at 60-90 days.
- Values from monitoring studies are lower still.

Ecological Risk Assessment: Toxicity and Exposure

- Risk Quotients (RQ)
  - Ratio of exposure concentration to toxicity endpoint (non-granular products)
  - Acute RQ = $\frac{\text{Peak Environmental Concentration}}{LC_{50} \text{ or } EC_{50}}$
  - Chronic RQ = $\frac{\text{Peak Environmental Concentration}}{NOAEC}$
- Ratio is compared to the Agency's Levels of Concern (LOC).

Acute Toxicity to Terrestrial Organisms

- Known cholinesterase inhibitor in birds and mammals.
- Moderately to very highly toxic to avian species on an acute oral basis.
- Slightly to highly toxic on a subacute basis.
- Moderately toxic to mammals on an acute oral basis.
- Highly toxic to bees on an acute contact basis and toxic to bees at 0.5 lbs ai/acre on an acute foliar contact basis.

Chronic Toxicity to Terrestrial Organisms (Birds)

- Multiple avian reproduction effects at > 4.0 ppm(NOAEL):
  - reductions in egg production, viable embryos, 3-week old embryos, normal hatchlings, 14-day old survivors, adult body weights, and eggshell thickness

Chronic Toxicity to Terrestrial Organisms (Mammals)

- Reproductive effects in the rat occurred at greater than 15 ppm:
  - Slightly decreased fertility, pup weight during lactation and number of live births

Acute Toxicity to Aquatic Organisms

- Moderate acute toxicity to freshwater and estuarine/marine fish
- Moderately to very highly acutely toxic to freshwater invertebrates
- Practically non-toxic to moderately acutely toxic to estuarine/marine invertebrates

Chronic Toxicity to Aquatic Organisms

- Adversely affected growth in freshwater fish and survival, reproduction and growth in freshwater invertebrates
- No data available to assess chronic toxicity to estuarine/marine fish or invertebrates

Summary of Acute Terrestrial Risk

- Most uses do not represent a significant acute risk to birds
- The restricted use LOC is exceeded for one or more food items at all application rates at or above 0.5 lb ai/acre
- All modeled scenarios result in at least one food item that exceeds the LOC for acute risk to mammals

Summary of Chronic Terrestrial Risk

- When used at maximum rates for most labels, dimethoate represents a moderate to high risk of sublethal and/or reproductive effects to birds and mammals

Summary of Aquatic Risk

- Acute risk quotients exceeded levels of concern only for freshwater invertebrates
- The chronic level of concern is not exceeded in any modeled scenario

Mortality Incidents

- Reports of a limited number of incidents involving birds and fish during the 1970's and 1980's. However, there was little evidence that dimethoate was the sole cause of the mortalities
- Field research studies have shown mortality to avian species (Blus et.al., 1989)

Summary and Conclusion

Mark Wilhite, Team Leader,
Reregistration Division, OPP

Summary of Revised Dietary Risk Assessment

- With proposed use changes incorporated:
  - Acute dietary risk at 99.9th percentile is below the level of concern for all population subgroups
  - Chronic dietary risk from food is well below the level of concern for all population subgroups
  - Aggregate risks from food and water do not exceed the Agency's level of concern

Summary of Worker Risk Assessment

- Handler Exposure (Applicator)
  - With additional PPE, most ground applications at less than 1 lb. a.i./A do not exceed the level of concern
  - With additional PPE or engineering controls, most aerial applications of 2 lbs. a.i./A or less do not exceed the level of concern

Summary of Worker Risk Assessment

- Post-Application Reentry Exposure
  - Based on chemical specific DFR data and standard Tcs
  - To meet the target MOE of 300, entry times after treatment range from 12 hours to 87 days, depending on crop and application rates

Summary of Ecological Assessment

- Terrestrial
  - Acute risk to birds and mammals do not exceed levels of concern for most uses
  - Chronic risk levels of concern for birds and mammals are exceeded at maximum use rates for most labels
- Aquatic
  - Acute levels of concern only for aquatic invertebrates are exceeded
  - No chronic concerns for aquatic organisms

Next Steps

- 60-day public participation period opens
- EPA will continue to:
  - Seek public input to address risk issues of concern
  - Meet with interested Stakeholders
  - Develop an interim Reregistration Eligibility Decision Document for Dimethoate